



Assistant Commissioner for Patents  
Washington, D.C. 20231

AMENDMENT UNDER 37 C.F.R. 1.111

Sir:

In response to the Office Action mailed 4-30-2002, please enter the following  
amendments and remarks.

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JUN 18 2002

IN THE SPECIFICATION:

TECHNOLOGY CENTER R3700

Abstract

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C  
A system and method are disclosed for controlling electromechanical intake valves disposed in the cylinder head of an internal combustion. The electromechanical valve system has a valve closing electromagnet capable of exhibiting an electromagnetic force for attracting the armature to close the valve, a valve opening electromagnet capable of exhibiting an electromagnetic force for attracting the armature to open the valve, a valve opening spring for biasing the armature in a direction to open the valve, and a valve closing spring for biasing the armature in a direction to close the valve. The method includes the steps of de-energizing the valve closing electromagnet, maintaining the valve closing electromagnet in the de-energized state for a predetermined time enabling the valve to oscillate by force of the valve opening spring and the valve closing spring, and energizing the valve closing electromagnet after the predetermined time to close the valve. By the method of the present invention, only the valve closing electromagnet need be energized in causing the valve to open and close. The method relies on the valve biasing springs to cause the valve to return to a location in which the valve closing magnet can actuate the valve closed. Prior methods require that both the valve opening electromagnet and the valve closing electromagnet be actuated to open and close the valve. The present invention provides an electrical energy savings compared to prior methods.

IN THE CLAIMS:

Please amend claims 7 and 22 as follows:

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7. (amended) The method of claim 4, wherein said valve period is based on the  
a<sup>2</sup> spring constant of the valve opening spring, the spring constant of the valve closing